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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,744	09/01/2006	Stephan Neffgen	GLAWE-13093	3419
72960	7590	06/24/2009	EXAMINER	
Casimir Jones, S.C. 440 Science Drive Suite 203 Madison, WI 53711			KWAK, JAE J	
			ART UNIT	PAPER NUMBER
			1796	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/591,744	<b>Applicant(s)</b> NEFFGEN ET AL.	
	<b>Examiner</b> JAE KWAK	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/06/2009</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 provides for the use of the dental materials, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. For purpose of further examination it is taken to mean "a process for using dental materials".

Claim 15 is dependent on claim 1 or 2 and claim 16 which renders the claim indefinite because a claim can't depend on 2 claims at once. A multiple dependent claim may refer in the alternative to only one set of claims. See MPEP § 608.01(n).

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 15 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e.,

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results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teramae et al. (EP 1149573 A2).

Regarding claim 1: Teramae et al. teaches a dental composite material comprising the polymerizable monomer/organic binder (abstract), and 5-100nm aggregate particles with 90-10% by weight amount of 5-100 nm aggregate particle size (Paragraph 33,44) which reads nanoparticles weigh and diameter of the instant claim. Further, Teramae et al. teaches that the filler/nanoscale filler is surface treated with silane coupling agent/organically surface-modified (Paragraph 37). Teramae et al. also teaches average particles size 23nm of ZrO<sub>2</sub>/ground filler and 16nm of ultra fine particle silica/spherical filler (Example 1).

In regard to the particle number % of aggregated particles. Teramae et al. teaches aggregate of silica nanoparticle (Paragraph 24) which is taken as 100% of nanoparticles are aggregated, and Teramae et al. teaches that desired shape and particle size aggregate are

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dependent on adjusting temperature, humidity, flow rate of gas etc. (Paragraph 35 lines 4-10).

Therefore, it would be obvious to one ordinary skill in art at the time of invention was made to have modify aggregate nanoparticles of Teramae et al. to achieve particle number % of nanoscale filler.

Regarding claims 2-3: Teramae et al. teaches 5-95% by weight of polymerizable monomer/organic binder, and 95 to 5% by weight of filler/nanoscale filler (Paragraph 44) which reads on the amounts of the present claim.

Regarding claim 4: Teramae et al. teaches 9 parts by weigh of silica particle (Example 1) which reads on the amounts of the present claim.

Regarding claim 7 and 13: Teramae et al. discloses monofunctional or polyfunctional polymerizable monomers such as methyl methacrylate (Paragraphs 25-29), and heat-initiator such as organic peroxide (Paragraphs 38-40) which reads on free-radical polymerizable compound and initiator.

Regarding claims 8-9: Teramae et al. teaches silica/silicon dioxide and metal oxide filler (Paragraphs 31, 34) which reads on the nanoscale filler of the present claims.

Regarding claim 10: Teramae et al. teaches various glasses/glass powder (Paragraph 36) which reads on the filler of the present claim.

Regarding claim 11: Teramae et al. teaches the organo-inorganic compound filler/bead polymer (Paragraph 36) which reads on the present claim.

Regarding claim 12: Teramae et al. teaches the organo-inorganic compound filler which is prepared by polymerization-covering the surface/high affinity with polymerizable monomer

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(Paragraph 36 lines 7-9). Further, Teramae et al. teaches that the filler/nanoscale filler is surface treated with silane coupling agent/organically surface-modified (Paragraph 37).

Regarding claim 14: Teramae et al. teaches that the cured dental composition was measured for Radiopacity/X-ray Opaque. (Paragraphs 1, 56).

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teramae et al. as applied to claim 1 above, and further in view of Lehmann et al. (US 6,936,642).

9. Regarding claims 5-6: Teramae et al. teaches the basic claimed polymerizable dental composite material. Teramae et al. is silent on adding pyrogenic, and wet-precipitated silicic acid. However, Lehmann et al. teaches pyrogenic highly-dispersed silicic acids (Col. 3 line 15). Teramae et al. and Lehmann et al. are analogous art since they are both concerned with the same field of endeavor, namely a dental compositions comprising curing organic and inorganic fillers. At the time of invention a person having ordinary skill in the art would have found it obvious to combine the pyrogenic highly-dispersed silicic acid filler taught by Lehmann et al. with the dental composite material composition of Teramae et al. and would have been motivated to do so for such desirable properties to influence thixotropy of dental fillers, as evidenced by Lehmann et al. (Col 3. line 21).

10. Claims 15-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teramae et al. (EP 1149573 A2).

11. Regarding claims 16 and 17-18, 22-23: Teramae et al. teaches a process of preparing dental composite material (Example 1, Paragraph 33) comprising the binder resin/organic binder

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**a1)**, and aggregate nanoparticles/nanoscale filler **a2)**, ultra fine particle silica/organic surface modification agent **a3)**, and filler with average particles size 23nm of  $ZrO_2$ /ground filler and 15nm of silica sol/spherical filler **a4)**. Further, Teramae et al. teaches a process of preparing aggregate treated/surface modification with  $\gamma$ -methacryloxypropyltrimethoxysilane/**b)**, and an amount of 55 part by weight aggregated/nanoscale filler **c)** which has a particle size of 5-100 nm (Paragraph 33 line 26). Also Teramae et al. teaches that after surface of aggregate treated with  $\gamma$ -ethacryloxypropyl-trimethoxysilane the aggregate and resin are kneaded in the mixer.

Regarding claim 15: Teramae et al. teaches that depending on uses the dental composite materials is packing type final dental material (Paragraph 46) for such as a crown prosthetic restoration (Paragraph 2).

Regarding claim 19: Teramae et al. discloses monofunctional or polyfunctional polymerizable monomers such as methyl methacrylate (Paragraphs 25-29), and heat-initiator such as organic peroxide (Paragraphs 38-40) which reads on free-radical polymerizable compound and initiator.

Regarding claims 20-21: Teramae et al. teaches silica/silicon dioxide and metal oxide filler (Paragraphs 31, 34) which reads on the nanoscale filler of the present claims.

Regarding claim 24: Teramae et al. teaches various glasses/glass powder (Paragraph 36) which reads on the filler of the present claim.

Regarding claim 25: Teramae et al. teaches the organo-inorganic compound filler/bead polymer (Paragraph 36) which reads on the present claim.

Regarding claim 26: Teramae et al. teaches the organo-inorganic compound filler which

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is prepared by polymerization-covering the surface/high affinity with polymerizable monomer (Paragraph 36 lines 7-9).

### ***Response to Arguments***

12. Applicant's arguments see page 11 line 10 and page 14, filed 04/15/2009, with respect to claim 1-4 and 7-14 and 16-26 have been fully considered and are persuasive. The rejection of 35 USC § 102, and 35 USC § 103 has been withdrawn in view of US 6,593,395.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAE KWAK whose telephone number is (571)270-7339. The examiner can normally be reached on Monday to Friday 8:30 A.M. EST 5:30 P.M. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.K.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796